



# HIGHWAYS COMMITTEE MEETING MINUTES

**DATE:** 1-3-2018 **TIME:** 2:40 PM – 3:40 PM **LOCATION:** Room 150

<b>MEETING CALLED BY</b>	Chairman Tarleton
<b>BOARD ATTENDEES</b>	Committee: Chairman Cullie Tarleton, Patrick Molamphy, Board Chairman Fox

## AGENDA TOPICS

<b>1. APPROVAL OF DECEMBER MINUTES</b>	
<b>DISCUSSION SUMMARY</b>	The minutes of the December meeting were not approved due to not having a quorum present.
<b>ACTIONS TAKEN</b>	
<b>2. HOW TECHNOLOGY WILL CHANGE TRANSPORTATION, PAUL STEINMAN, PE, TRANSPORTATION GROUP DIRECTOR, HNTB NORTH CAROLINA, P. C.</b>	
<b>DISCUSSION SUMMARY</b>	<p>Mr. Paul Steinman with HNTB North Carolina, PC, presented on how technology will change the future of transportation. The expectations of our consumers are changing. People view transportation as a service, which they want to be reliable and safe. People also want convenience to get from point to point. They also want their transportation to be high tech and personalized. People also believe that transportation should be environmentally friendly and may be a shared resource. In the future, cars will be Automated/Connected, Electric and Shared (ACES).</p> <p>He discussed the various types of transportation that will be affected by technology including platooning trucks, ports, 2-person pods, automated shuttles, and delivery trucks equipped with drones. He discussed the differences between automated, connected, and autonomous vehicles. "Automated" refers to technology to better transportation systems.</p> <p>"Connected" vehicles refers to vehicles that "talk" with other vehicles and technology. Connected vehicles use information exchange platforms such as Dedicated Short Range Communications, Cellular and Satellite. These systems may communicate either Vehicle to Infrastructure (V2I), Vehicle to Vehicle (V2V), or Vehicle to Bike/Ped/Other (V2X). Examples of Driver Assist Features include Wrong Way Driver Detection, Speed Detection, Over-height Detection, Emergency Braking, Emergency Vehicle Warning, Red Light Warning, Work Zone Alert, and Tolling Alert.</p> <p>"Autonomous" vehicles refers to vehicles that can function independently. The vehicles are equipped with LIDAR, Long and Short Radar, GPS/Enhanced Digital Map System, Advanced Software, and a Forward Vision System that performs lane tracking, object detection and far IR capability. Safety critical functions of the vehicle (steering/throttle) are affected without direct driver input.</p> <p>Mr. Steinman also discussed some of the challenges with implementing future transportation technology including the transition period, consumer acceptance, land use planning, transportation planning, interoperability, technical expertise, data ownership, cybersecurity, transportation funding, and insurance liability issues.</p>



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<b>ACTIONS TAKEN</b>	N/A
<b>3. PREPARING NORTH CAROLINA ROADS FOR AUTOMATED AND CONNECTED VEHICLES, KEVIN LACY, PE, STATE TRAFFIC ENGINEER, NCDOT MOBILITY AND SAFETY</b>	
<b>DISCUSSION SUMMARY</b>	<p>Mr. Kevin Lacy discussed how various transportation aspects may change with autonomous and connected vehicles (AV/CV). Cars will become smarter and more efficient with high efficient engines, lighter materials and autonomous driving. The automotive and technology industries will evolve with new competition from tech companies and suppliers capable of producing high-tech parts at low prices. People will view cars differently, sharing cars and using them as a space to consume media and make phone calls. Many roadway characteristics will not change for a long time; pavement and bridges must be maintained. The Department/DMV's role will evolve, but how and when is uncertain.</p> <p>Some uncertainties with autonomous vehicles include:</p> <ul style="list-style-type: none"> <li>• how fast AV services will be accepted, safe useful and successful;</li> <li>• changes to infrastructure requirements in response to AV/CV;</li> <li>• changes to revenue collection methods with the migration to electric vehicles;</li> <li>• changes to public transit and freight (these groups may shift to smaller vehicles that may be more demand responsive);</li> <li>• changes to network management;</li> <li>• changes to the Transportation Funding model; and</li> <li>• changes to vehicle ownership (transportation may be viewed as a service).</li> </ul> <p>Projections for vehicle ownership will go from the current single ownership to either multiple ownership or corporate ownership.</p> <p>The Department's processes will also change based on AV/CV ownership. Planning will include shorter planning horizons and will include new methods to represent AV services. Design will incorporate new technologies, communications networks, e-Signs, special pavement marking paints, and Electronic Vehicle charging. During construction, work zones may be managed with AVs. Anticipated changes to the Department's roles include: Public transit versus Private AV services, the relationship of DMV with AV fleet owners versus private citizens' licensing and registration, freight owner/operators, charging station owner/operators and policing/regulation of AV fleet operators. How the Department collects revenues will also need to change from the current model with the gas tax of trickle-charge taxation to a bulk-charge taxation. Since 1980 vehicle miles traveled (VMT) has doubled and fuel consumption increased by only 50%. Transitioning from a gas tax to a VMT tax may increase revenues by approximately 33%. Another option would include "buying miles" on a yearly basis. Vehicle registration fees and battery taxes are other potential revenue sources.</p>
<b>ACTIONS TAKEN</b>	N/A